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CLAIMS:

1. A transmit antenna for a surface wave radar system, including:
a linear array of active monopole antenna elements for transmitting signals in
5 respective frequency ranges, the relative spacings and the relative heights of
successive elements along the array having substantially logarithmic relationships;
impedance matching circuits for the active monopole antenna elements; and
switch means for selecting one of the active antenna elements to transmit a
signal in a corresponding frequency range while grounding the remaining active
10 antenna elements.
2. A transmit antenna as claimed in claim 1, wherein the switch means sequentially
selects one of said elements.
- 15 3. A transmit antenna as claimed in claim 2, wherein the sequential switching is
continuous and repeated.
4. A transmit antenna as claimed in claim 1, including passive elements at respective
ends of said linear array.
- 20 5. A transmit antenna as claimed in claim 4, wherein the relative heights and relative
spacings of each passive element and its adjacent active element have logarithmic
relationships.
- 25 6. A transmit antenna as claimed in claim 1, wherein each active antenna element
includes a grounded radial wire counterpoise.
7. A transmit antenna as claimed in claim 6, wherein each radial wire counterpoise
forms a substantially semicircular region oriented towards the high frequency end
30 of the antenna.

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8. A transmit antenna as claimed in claim 1, wherein said active antenna elements include respective impedance matching networks.
9. A transmit antenna as claimed in claim 8, wherein each of said impedance matching networks includes a capacitor and an inductor in parallel between a transmit signal path and ground.
10. A transmit antenna as claimed in claim 9, wherein at least one of said impedance matching networks includes an inductor in series with said transmit signal path.
11. A transmit antenna as claimed in any one of claims 1 to 10, wherein said frequency ranges are of the order of 1 MHz.
12. A transmit antenna as claimed in any one of claims 1 to 11, wherein said frequency ranges are substantially equal to 5.0 to 5.7 MHz, 5.7 to 7.1 MHz, 7.1 to 8.15 MHz, and 8.15 to 10.0 MHz.
13. A transmit antenna as claimed in claim 5, wherein the heights of said passive antenna elements are substantially equal to 16.00 m and 6.39 m, respectively.
14. A transmit antenna as claimed in claim 5, wherein the spacings of said passive antenna elements from respective active antenna elements are substantially equal to 13.94 m and 6.97 m, respectively.
15. A transmit antenna as claimed in any one of claims 1 to 14, wherein the heights of said active antenna elements are substantially equal to 12.78 m, 10.75 m, 9.04 m, and 7.60 m, respectively.
16. A transmit antenna as claimed in claim 14, wherein the spacings of said active antenna elements are substantially equal to 11.72 m, 9.86 m, and 8.29 m, respectively.